

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 115709 Son2/sko	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NO 03/00404	International filing date (day/month/year) 02.12.2003	Priority date (day/month/year) 04.12.2002
International Patent Classification (IPC) or both national classification and IPC G01S5/30		
Applicant SONITOR TECHNOLOGIES AS et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 28.06.2004	Date of completion of this report 08.03.2005
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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-7 as originally filed

Claims, Numbers

1-20 as originally filed

Drawings, Sheets

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

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5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3,6-20
	No: Claims	1,2,4,5
Inventive step (IS)	Yes: Claims	6,13-20
	No: Claims	1-5,7-12
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

2. Citations and explanations

see separate sheet

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Point V:

1. The following documents are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US-A-6 141 293 (AMORAI-MORIYA N. ET AL) 31 October 2000, cited in the application
D2: GB-A-2 298 098A (Tagware Limited) 21 August 1996
D3: GB-A-2 265 038A (Olivetti Research Limited) 08 March 1993

2. The subject-matter of claims 1, 2, 4 and 5 is considered to lack novelty, Art. 33(2) PCT.

- 2.1 Document D1 (Fig. 3) anticipates all features of independent claim 1 in disclosing

an identification tag (Fig. 1, 26) for use in a system (Fig. 1, 26, 40 and 50) for determining the position of the identification tag (Abstract, l. 1-5), which may be in motion in a room in a building or other areas to be monitored (col. 11, l. 46-50), the identification tag comprising an ultrasonic transducer (64) connected to a transmitter adapted to transmit ultrasonic signals (col. 14, l. 29-32), together with a radio transmitter (66) and radio receiver (60) connected to an antenna (61) for transmitting and receiving radio signals containing the identity of the identification tag (col. 14, l. 43-46 and col. 12, l. 45-47).

- 2.2 Document D1 (Fig. 3) also discloses the additional feature of dependent claim 2:

the identification tag comprises a control unit (62) adapted to control the transmission of ultrasonic signals and radio signals (col. 14, l. 26-31 and 40-43).

- 2.3 Document D1 (Fig. 3) discloses the additional feature of dependent claim 4:

the radio receiver (60) being connected to the control unit (62) and arranged to receive radio messages from master units (50) (col. 12, l. 38-42 and col. 14, l. 25-31).

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2.4 Document D1 (Fig. 3) discloses the additional feature of dependent claim 5 in that

the radio transmitter (66) is connected to the control unit (62) and adapted to transmit radio messages to master units (50) (col. 14, l. 43-46).

3. The subject-matter of claims 3 and 7-12 is considered to lack inventive step, Art. 33(3) PCT.

3.1 Document D1 (Fig. 1) discloses

a stationary master unit (50), specially adapted to a system (50, 40, 26) for position determination of objects which may be in motion, characterised in that it comprises:

- a radio receiver unit connected to an antenna for transmitting and receiving information from an identification tag (col. 5, l. 55-58; col. 12, l. 37-41 and col. 14, l. 43-46),
- signal processing means for receiving and interpreting radio signals, and for executing the following step for processing the received ultrasonic pulses:
calculating the position of the identification tag from the propagation time of the ultrasonic signals (col. 5, l. 55-58 and col. 15, l. 40 - col. 16, l. 16).

Thus, the method of claim 7 differs from the disclosure of document D1 by the following features:

- a) the stationary master unit comprises an ultrasonic transducer for receiving ultrasonic signals in the form of ultrasonic pulses and a receiver unit for detecting ultrasonic pulses transmitted from the identification tag;
- b) signal processing means calculate transit time differences for received ultrasonic pulses transmitted from the identification tag and transmits to a central processing unit via a network data containing transit time differences for received ultrasonic pulses, an identification of the room in which it is located, and the identification of the identification tag.

The disclosed slave unit (40) of D1 comprises an ultrasonic transducer (Fig. 4, 76) for

receiving ultrasonic signals in the form of ultrasonic pulses and a receiver unit (Fig. 4, 77) for detecting ultrasonic pulses transmitted from the identification tag (col. 14, l. 54-67 and col. 12, l. 59-63; col. 14, l. 34-36). It would be obvious to the skilled person that a master unit could, additionally to its controlling functionality, also provide the aforementioned functionality of a slave unit, thus acting as an additional slave unit. Accordingly, the distinguishing features (a) merely specify minor implementation details of usual design.

The difference features (b) relate to the case that several surveillance areas (e.g. rooms) are observed by means of several master units, each dedicated to a respective area. However, this is a well-known method in the field of indoor positioning and tracking and accordingly, the distinguishing features (b) are considered as usual design measures (see for instance document D2, Abstract, 1st par. and p. 4, 2nd par.).

Therefore, the subject-matter of claim 7 does not involve an inventive step over the disclosure of document D1.

3.2 Document D1 (Fig. 1) discloses the following features of independent claim 8:

A system (26, 40, 50) for determining the position of at least one identification tag (26), characterised in that it comprises:

- at least one identification tag (26; Fig. 3) (according to claim 1, see par. 2.1, above),
- one master unit (50) for detecting **transit times** for the ultrasonic pulses transmitted from the identification tag (see par. 3.1, above),
- several slave units (40) with means for receiving ultrasonic signals in the form of ultrasonic pulses (Fig. 4, 76), means for detecting ultrasonic pulses transmitted from the identification tag (Fig. 4, 78, 79), means for measuring **transit times** for received ultrasonic pulses (Fig. 4, 82), together with means for transmitting this information to master units (Fig. 4, 86, RF transmitter),
- a network interconnecting several slave units and the master unit (col. 12., l. 37-41 and col. 12, l. col. 12, l. 66 - col. 13 l. 5; radio network).

Thus, the method of claim 8 differs from the disclosure of document D1 by the

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following features:

- a) the transit **time differences** are detected,
- b) master unit receives and processes the ultrasonic signals (see claim 7)
- c) at least one central processing unit for collecting, interpreting and processing data transmitted from master units, a network interconnecting several master units with the central processing unit, and processing means in the central processing unit for determining the position of a transmitter unit.

It is pointed out that difference features (a), (b) and (c) do not mutually affect each other to achieve a technical effect over and above the sum of their respective individual effects, and thus, represent a mere aggregation of features.

Detecting the transit time differences (difference feature (a)) is commonplace in the field of positioning and tracking systems where no time synchronisation between the transmitter and the receiver exists (see for example description p. 2, l. 37 - p. 3, l. 2 or D2, abstract).

Distinguishing feature (b) is considered as a minor implementation detail of usual design (see par. 3.1, above).

The distinguishing features (c) relate to well-known methods in the field of indoor positioning and accordingly, they are equally considered as usual design measures (see for instance document D2, Abstract, 1st par. and p. 4, 2nd par.).

Therefore, the subject-matter of claim 8 does not involve an inventive step over the disclosure of document D1.

3.3 Document D3 (Fig. 1) discloses the additional feature of dependent claim 3, since

the receiver (26 ,28) is connected to the control unit (18) and arranged to receive messages from other identification tags (p. 3, 3rd par.; p. 9, 6th par.).

3.4 The remaining features of dependent claims 9-12 merely specify minor implementation details of usual design.

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